

The Evolution of the Cycle.



LO speak of the wonderful strides made in cycle construction within twenty years or so, to compare the modern racing, air-tyred, ball-bearing, tubular racing safety with the boneshaker of 1868, or the hobby-horse of

1820; to rhapsodise upon the heights to which the mechanism of the cycle has now been carried, to speculate upon its future development—these things are common-places. Let us, while touching lightly upon the descent of the modern cycle in a direct line, chiefly amuse ourselves by contem-

plating the various extinct species—those developments of the original germ which have somehow taken the wrong turning in the course of evolution, have then stopped, and, as rare fossils, are now only looked at as rarities and curiosities.

The records of the Patent Offices, both here and in America, contain drawings of many hundreds of these quaint articles, many—perhaps most—of which probably never grew beyond existence on paper. Also, there were gathered together last year, by the Stanley Bicycle Club, a quaint collection of actual existing fossils—masses of machinery actually constructed and now forgotten. Of members of this collection, now dispersed, and never to come together again, we shall reproduce a number of photographs; also we shall reproduce many of the outline drawings buried in the Patent Office, with all their garnishment of indicator letters and figures, whether we allude to those wonderful signs or not.

When the idea first took form of enabling a man to travel by his own leg power, assisted by wheels, none can say; nor is it known who first attempted to put the notion into practice. Certain it is that, in 1761, a description of a machine to travel

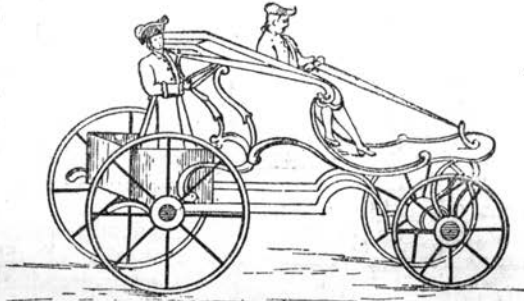
without horses appeared in *The Universal Magazine*; and since this machine—invented by one Ovenden—is alluded to as “the best that has hitherto been invented,” it is pretty obvious that Mr. Ovenden had his predecessors in this particular department of design, though of them we know

little. Here is Mr. Ovenden's machine.

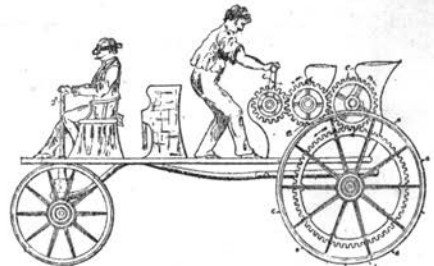
The unfortunate footman (whose over-worked legs are mercifully hidden from sight in a sort of tank), supporting himself by a strap, was expected to drive that immense wooden carriage and its contents “with ease” six miles an hour, and with “a peculiar

exertion” (quite so) nine or ten miles an hour. The owner of the equipage, meantime, gaily steered with a pair of reins. We hear nothing further of Mr. Ovenden and his machine. Can he have fallen a victim to a secret assassination committee of footmen?

In 1804 a genius of the name of Bolton turned up in America, and invented another quaint engine. We reproduce his own drawing from the patent specification, indicator letters and all, so that his representatives may not accuse us of doing his work an injustice. We can justly admire the



OVENDEN'S MACHINE.



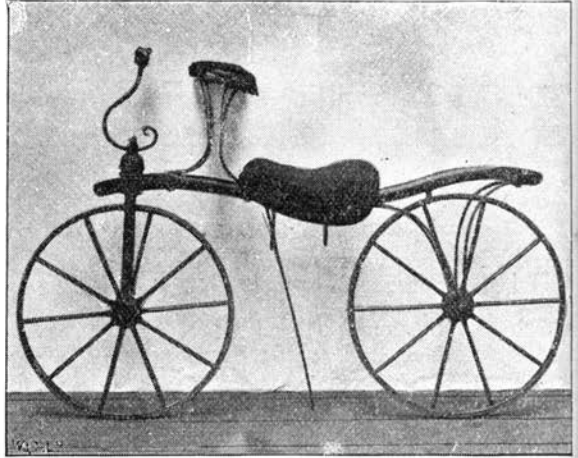
BOLTON'S MACHINE.

foresight of the inventor in representing the unhappy operator in rolled-up shirt-

sleeves, for verily elbow grease would be called for in wholesale quantities. The knowing person who does the steering smiles furtively at the reflection that he is coming out very much ahead in the matter of division of labour. But even with that, it will be observed, he has pulled his hat over his eyes as though rather ashamed of himself for so using a fellow-creature. As well he may be.

After this came the hobby-horse. In 1808 this strange machine—two wheels, tandem fashion, connected by a bar—made its appearance in Paris. There were no means of steering this thing, so that presumably, when the rider, after straddling across the seat placed midway on the connecting-bar, and paddling furiously with his feet against the ground, arrived at a corner, he had to lift up the whole thing and dump it down again in a new direction.

the machines in his club's historical collection are used.

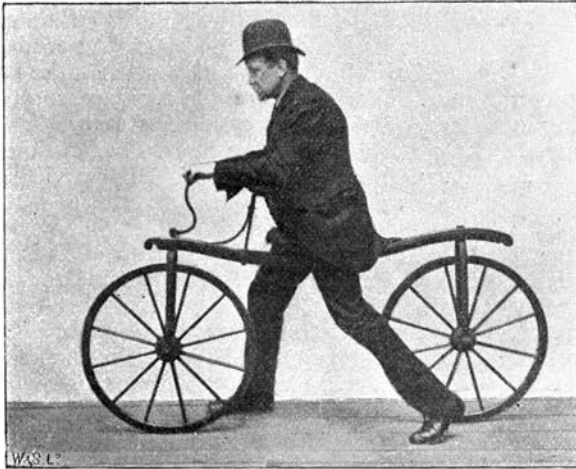


DUKE OF MARLBOROUGH'S DANDY-HORSE.

These dandy-horses became all the rage, the coat-tails of our grandfathers and

great-grandfathers fluttered bravely over the roads, and the striding legs of the same gentlemen beat up the dust north, south, east, and west. It became fashionable, as well as popular, and at the exhibition of the Stanley Club one was shown which had been the property of the great-grandfather of the present Duke of Marlborough.

This ducal vehicle is appropriately rather a swell. It has an ornamented brass fitting at the top of the steering-socket, and an extra large cushion (albeit now burst out) upon which rested the ducal elbows. This was the production of a maker and patentee of the name of Parker. Being fashionable, of course the craze was caricatured, and many



JOHNSON'S DANDY-HORSE.

some few years, this seems to have struck a genius as an inconvenience; whereupon said genius proceeded to mount the front wheel, so that it might be turned, and, behold! there emerged the dandy-horse. A Mr. Dennis Johnson, who was a coach-maker, at 75 Long-acre, took out a patent for this dandy or hobby-horse in 1818, and we here reproduce a photograph of one of these very machines of Johnson's—still in existence, and represented as bestridden by Mr. J. Dring, of the Stanley Club, by which gentleman's permission the photographs of

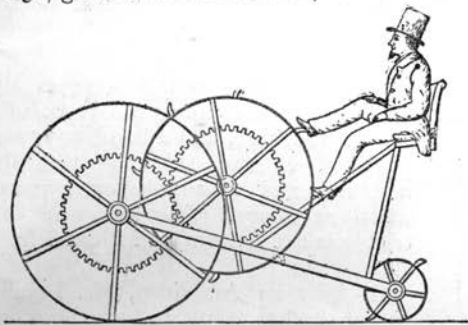


From a Drawing by] "AT FULL SPEED."

[Cruikshank

spirited drawings by Rowlandson and the Cruickshanks are now regarded as prized relics by cyclists of historical tastes. One of these drawings, which we reproduce, gives a good, although exaggerated, idea of the action of a rider of a dandy-horse at full speed. A Continental inventor, one Gompertz, came out with an improvement upon the ordinary hobby-horse, providing an auxiliary driving-power for the front wheel. A cogged wheel was fixed to the side of the front hub, and a sextant-shaped rack gearing with this and moved by a lever which was also used as a steering-handle, served to drive the wheel forward.

The hobby-horse mania seems to have died out almost as suddenly as it came into being, and a period of blankness in cycle invention followed. A French patent of 1830, granted to a M. Julien, relates to an

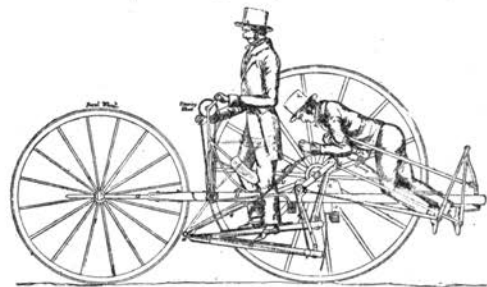


JULIEN'S MACHINE.

invention not very easy to comprehend. In the drawing it will be observed that the gentle soul in the chimney-pot hat works a sort of "everlasting staircase" (this being a slang term for the treadmill), by that means turning an immense wheel in front. A thing herein difficult to understand (although it really may be a hidden beauty) is the balancing and steering of this elegant instrument, the inventor having carefully refrained from finding anything, mischief or otherwise, for his victim's idle hands to do. Another difficulty is suggested by the back wheel. We quite appreciate M. Julien's good intentions in providing a couple of spikes to prevent the whole arrangement running backward when proceeding uphill, but he seems to have forgotten that some retarding effect to forward motion might be involved therein. Perhaps he found the thing so tremendously speedy that something of a check was necessary; or the con-

trivance may have been intended to plough with.

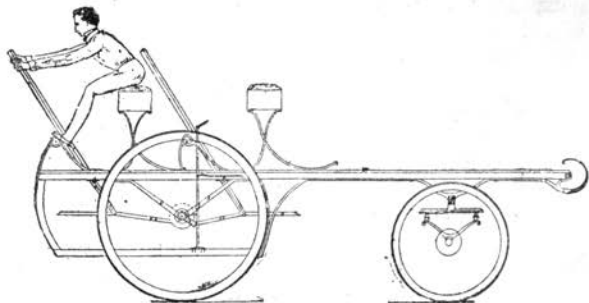
Later in the same year Messrs. Bramley and Parker, in England, went in for some-



BRAMLEY AND PARKER'S MACHINE.

thing comprehensive and elaborate. They have, at any rate, the honour of inventing the first tandem tricycle. In their drawing they omit the nearer hind wheel, whereby we have the advantage of a clear view of Mr. Parker (or is it Mr. Bramley?) working his best in a sort of swimming attitude. The more favoured partner (whose hat is really too large) steers by an arrangement obviously suggested by the rudder wheel of a ship, and drives by an arrangement more humbly derived from the travelling knife-grinder. The hinder gentleman obviously has not come out to admire the landscape, and it is to be hoped that his hat may never fall among all that mechanism, for its own sake.

In 1831 Mr. Alexander Cochrane invented the first recorded road machine in which the rowing motion was used. Several inventors since this time have devoted their ingenuity to adapting this motion to cycles, without any particular success. Why it is considered desirable to go out of the way to use an action obviously foreign to and unsuitable for the road, is one of those

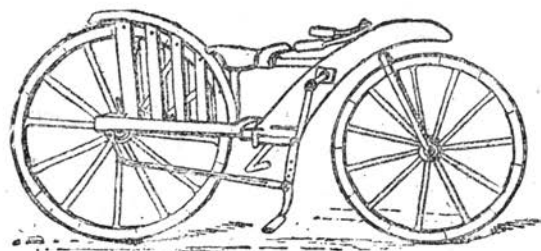


COCHRANE'S MACHINE.

things which perhaps will never be explained. Cochrane's notion, however, was

not so insane as many put forward in the early days, and it may be seen that, with his long levers, he at least provides a great deal more effective power than other inventors of manumotors thought necessary.

Some years after this (exactly how many is uncertain) Gavin Dalzell made his bicycle at Lesmahagow, in Scotland. This machine has long been considered the first two-wheeled one-track vehicle in which the rider was placed clear of the ground and provided with a satisfactory driving and steering apparatus; in fact, the first practicable bicycle, as we now know it, and, stranger still, the almost exact prototype of the latest pattern of rear-driving safety. But of late it has been found that another machine, on precisely the same principle, was made by Peter McMillan, also a Scotsman and a blacksmith, a little before Dalzell made his. Still, there seems no reason to suppose other

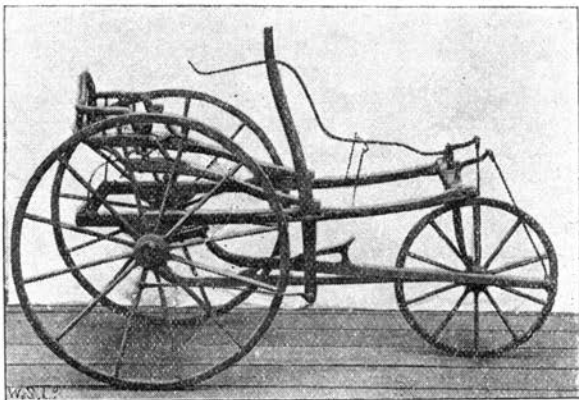


DALZELL'S MACHINE.

than that these were separate inventions of the same thing, and that the whole business was a curious coincidence. Dalzell's original machine is yet in existence, much time-worn and worm-eaten, but in working order still. The machine is chiefly of wood, with iron fittings and tyres. The rear wheel is 40 inches in diameter and the steerer 30 inches. It will be seen that the front fork slopes back just as does the front fork of a modern machine, and that the handles are curved back quite in the fashionable mode of to-day. The rear wheel is driven by cranks and levers from single-barred pedals. The frame, heavy and clumsy as it is, is not unlike that of a lady's safety. The rabbit-hutch arrangement over the back wheel is a dress guard. This again, of another sort, is used on the lady's bicycle of to-day.

One of the first of the crank-driven tricycles was shown in the Stanley collec-

tion, and is here represented. It was of wood, with a Bath-chair steering apparatus, and the cranks were driven by levers hung from the fore part of the frame, by the



THE FIRST CRANK-DRIVEN TRICYCLE.

steering-wheel. The pedals were of the shape of a boot-sole, like unto those of a sewing machine, and a hand lever was provided at the side to start the machine, and to supply extra power when necessary. The maker of this tricycle is not known, but it dates from about 1840.

In 1861 an American, Mr. Landis, patented what seems to have been intended rather as a toy than as a vehicle. It consisted of a rocking-horse mounted upon a carriage set on wheels, the hinder end of the rocker being cranked to the back wheels in such a way that the rocking motion might turn the wheels. It is, however, described as a "velocipede"—

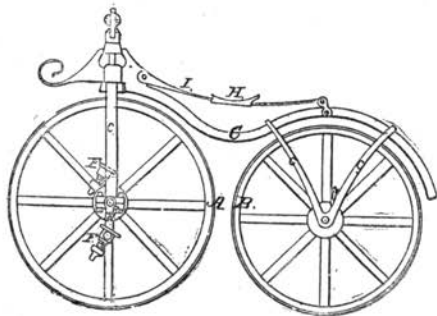


LANDIS' MACHINE.

the name at that time applied generally to any human-driven vehicle.

Now we arrive at the era of the Bone-

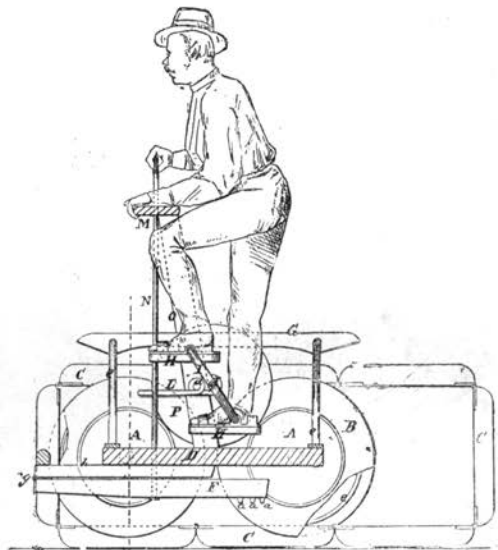
shaker—that clamorous, rattling, wobbling two-wheeled truck which astonished the



LALLEMENT'S MACHINE.

world in the sixties. Pierre Lallement, a French mechanic, is considered to be the inventor of this, and, indeed, until the discovery of Dalzell's machine, was given the credit of inventing the balanced and crank-driven bicycle altogether. Lallement was in the employ of M. Michaux, who made three-wheeled velocipedes and perambulators in Paris. Somewhere before 1864 the design of the boneshaker sprang into being in the brain of the ingenious Lallement, and the concrete result in solid wood and iron is familiar to most of us. There is another claim to having invented and ridden the cranked bicycle about this time on behalf of an Englishman named Phillips, but the evidence is weaker than that supporting the pretension of Lallement, of whose first dozen machines two were bought by residents in Ireland. Lallement was able to take out a patent for some part of his machine in America, and his drawing then presented we reproduce. The pedals, it will be seen, are weighted, to keep them

right side up. One of these machines was shown at the Paris Exhibition of 1865, and in 1869 their use was taught at Spencer's Gymnasium, in Goswell-road, London, Charles Dickens being for a short time one of Spencer's pupils. English makers at once sprang up, and Beck, Stanley, Parfrey, Keen, and the Coventry Machinists' Company were some of the first. The machine made by Beck in 1870, which we illustrate, was greatly improved, and considered at the time to represent the high-water mark of cycular invention. It was one of the first two or three bicycles fitted with india-

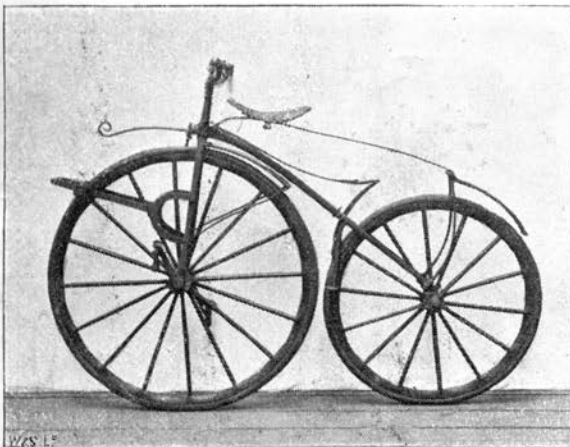


GLEASON'S MACHINE.

rubber tyres, had an improved brake (worked by a string) and leg rest, and weighed—what do you think? One hundred and fifty pounds!

Harking back a little, however, we find a delightful invention in America, 1868. To describe it would be an impossibility, wherefore we reproduce the inventor, Gleason's, drawing. Here is an independent cyclist who carries with him not only his machine, but the road to ride on. Here is Mr. Gleason's own description:—

“The object of this invention is to obtain locomotion by the direct application of the weight of the operator. An endless track, composed of the hinged parts C, C, C, as shown, loosely close each of the two wheels on a side, and are kept



BECK'S MACHINE.

in proper position by means of the flanges *B* of the rolling wheels as shown. By this means the track is laid in front of the wheels, and passes over from the rear of the same in an endless belt, as shown. The guide rails *G* are supported above the traction wheels by means of arms *e*, as shown, and prevent the jointed track from leaving the flanges." It is a great thing to be able to have a smooth road everywhere, carrying it as a part of the baggage, but perhaps most of us will be contented to take the road as it comes on our bicycles

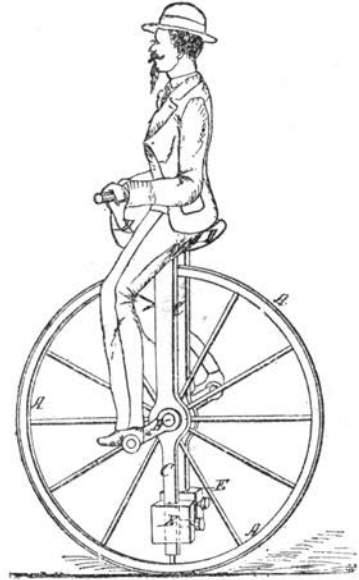


HEMMINGS' MACHINE.

as they are, thanking Mr. Gleason all the same.

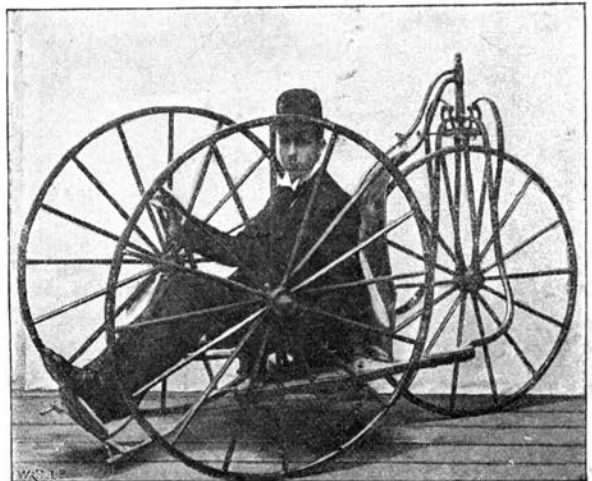
In 1869 another American, Mr. Richard Hemmings, made an attempt in which he had both predecessors and followers. Many people have been struck with the notion of using one big wheel only, the centre being made open to contain the rider. It would be rash to guess at the number of patents taken out with this central idea, but all have been failures—few of the inventors even taking the trouble to provide a means of steering. Mr. Hemmings' is one of these. His outer wheel, it will be seen, runs loosely upon the rollers of his inner framework. His feet hang in stirrups, and as he turns the wheel *c* the band *G* drives the wheel *B'*. Whether the latter wheel drives the outer by friction or cogs, or whether it is intended

to move the machine by continually impelling the weight forward is not quite clear, but there sits Mr. Hemmings in the picture, and if it never became his fate so to sit in the actual machine—well, perhaps it saved him a lot of trouble after all.



WARD'S MACHINE

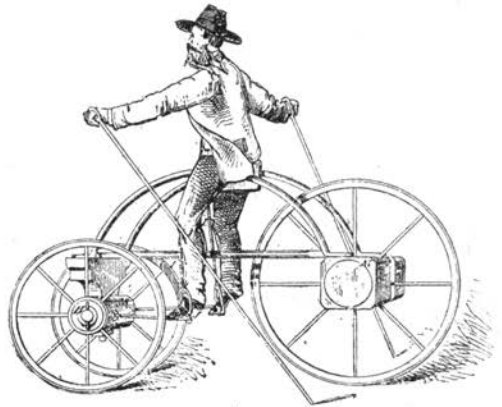
But Mr. T. W. Ward, of New York, preferred to sit astride his one wheel. His ingenious dodge was to carry the forks below the bearings, and then to fasten weights whereby he might retain a dignified perpendicular. But, in his enthusiasm, Mr. Ward omitted to consider what sort of



CHARSLEY'S FIRST MACHINE.

weights he would require, and what amount of them. If Mr. Ward weighed twelve stones he would want about a quarter of a ton, with the forks of the proportions shown. In these circumstances it is difficult to know whom less to envy, Mr. Ward or any unlucky person he might run against.

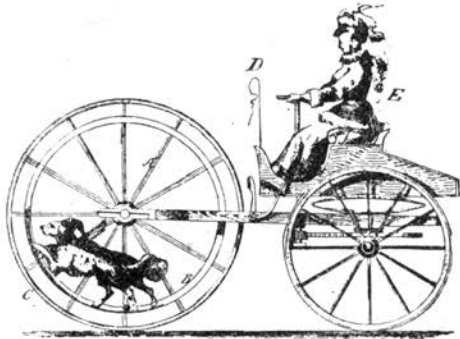
The first tricycle ever made to the design of the Rev. Mr. Charsley, who has given great attention to designing tricycles for the use of the lame, was made in 1869, and was hand-driven by cranks. "He that is down need fear no fall," might have been Mr. Charsley's watchword in placing his rider. Still, quaint as the machine looks, it was the forerunner of the most successful hand-



CROFT'S MACHINE.

for anything) could perpetrate such a thing as late as 1877. The rider, as the gentle reader may see for himself, was to punt himself along with a pair of poles—literally to punt along the public highway, steering meanwhile by means of his feet in stirrups. An idea of the fiery pace of this contrivance is skilfully expressed by the fluttering beard in the inventor's picture; but, notwithstanding his liberal use of the alphabet in the diagram, we fear that Mr. Croft flatters himself. We would almost back the dogs against him, or M. Julien.

Soon the boneshaker became a bicycle with a tall front and a small back wheel, and the first effective attempt to cope with the danger from headers thereupon consequent was comprised in Singer's Safety, the invention of Mr. Lawson in 1878. The identical machine here represented was

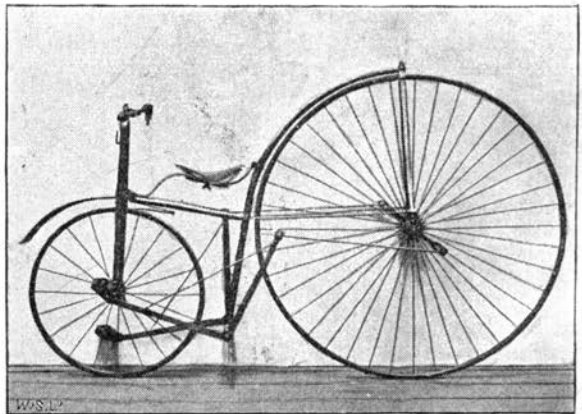


MEY'S MACHINE.

driven tricycle ever produced. It was steered by a movement of the back against the broad guard before the steering wheel.

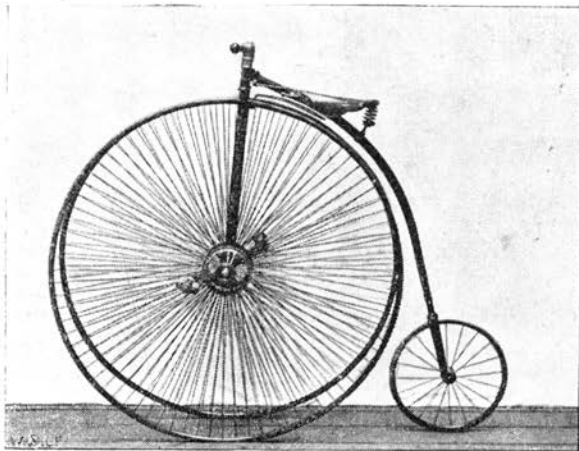
Another American distinguished himself in 1870—Mr. Mey, of Buffalo. An idea of his invention is best conveyed by his own drawing. Here we see, doubtless, one of the original "Buffalo gals" in a smart trap, the motive power of which is a sort of magnified squirrel-cage, in which two wretched dogs are expected to gallop, and, in the inventor's words, "will impart motion to the wheel and to the vehicle, as will be clearly understood." Mr. Mey thoughtfully provides a whip, and marks it with a big, big D, although a means of reaching the dogs with it when they are encased in the wheel A B C must form the subject of another invention—and a clever one.

Still another American, a Mr. Croft, invented a fearful and wonderful engine in 1877. Really, it is not easy to believe that even a cycle inventor (and some of them are mad enough



LAWSON'S SAFETY MACHINE (MADE FOR VISCOUNT SHERBROOKE.)

made for Viscount Sherbrooke—then Mr. Robert Lowe—who, as a rider of the



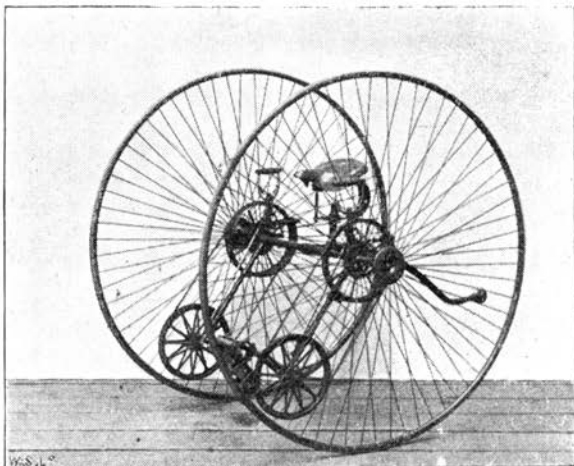
THE BI-TRICYCLE.

original dandy-horse, is perhaps the oldest cyclist now alive. It was driven by cranks upon the hind wheel, actuated by pedals, bent levers, and connecting rods. With its great flopping back wheel and its small, sensitive steerer, the machine might have been more handy, but it was a sound machine in its safety principle, and well built. Its stable companion was the Challenge tricycle, almost identical in design, except that two steering wheels were used, turned by Blood's patent gear. This was the first tricycle made with wire wheels and rubber tyres. More than one inventor has built a bi-tricycle, a machine combining the faults of the two- and three-wheeler, with the advantages of neither.

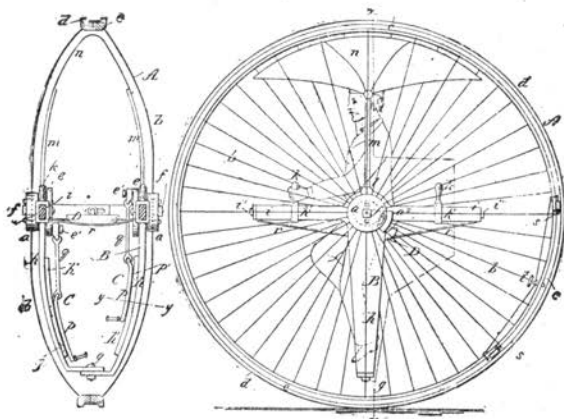
In 1880 a very novel bicycle—or dicycle, as some called it—was invented. This was the Otto, wherein two large wheels were placed side by side, both driven by cranks through endless metal bands. The rider sat above the centre of gravity, and his chief business in life was to guard his nose and the back of his head from the assault of the roadway. Steering was done by either hand, the driving

band being loosened upon the inner side, whereupon the outer (driven) wheel turned upon the inner one. The Otto was a pretty invention, but it never succeeded as a machine for pace.

One more American invention, and we have done. It is Schaffer's monocyte, and looks a terrible thing. The victim is entirely caged up inside the wheel, and what means of escape he could avail himself of in case of collision or bolting nobody but the inventor could tell us, and he doesn't. A large flap of the wheel and spokes, it seems, was to be removable to enable the victim to be inserted. It is a charming



THE OTTO.



SCHAFER'S MONOCYCLE.

thing, and with all its index letters (which seem to have been sprinkled in from a pepper-box) has quite a learned and scientific appearance; notwithstanding which, there is no record of its use upon the high-road. So that the high-road is a less dangerous place than it might be, after all.

With the highly finished machine of the present day our business does not lie.